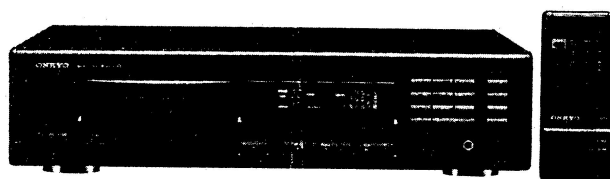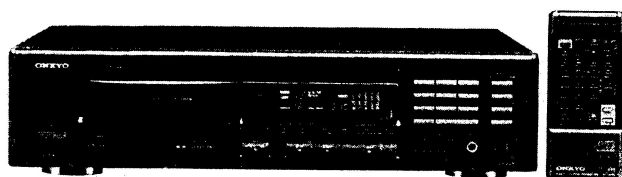# ONKYO® SERVICE MANUAL

COMPACT DISC PLAYER

MODEL DX-6930   MODEL DX-6920

Black and Silver models

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SPECIFICATIONS

Signal readout system:	Optical non-contact
Reading rotation:	About 500~200 r.p.m.
	(constant linear velocity)
Linear velocity:	1.2~1.4m/s
Error correction system:	Cross interleave readsolomon code
D/A converter:	1 bit PWM/Accu Pulse D/A converter
Sampling frequency:	352.8kHz (8 times oversampling)
Number of channels:	2 (Stereo)
Frequency response:	5Hz~20kHz
Total harmonic distortion:	0.004% (at 1kHz)
Dynamic range:	96dB
Signal to noise ratio:	100dB
Channel separation:	90dB (at 1kHz)
Wow and Flutter:	Below threshold of measurability
Power consumption:	12 watts
Output level:	2 volts r.m.s.
Dimensions (W×H×D):	455×110×306mm
	18"×4-3/8"×12"
Weight:	5.0kg. 11.0 lbs.

Specifications are subject to change without notice.

ONKYO®
AUDIO COMPONENTS

TABLE OF CONTENTS

NOTE ON COMPACT DISC

● **Holding Compact Discs**

Hold Compact Discs by the edges so that you do not touch the surface of disc. Remember that the side of the disc with the "rainbow" reflection is the side containing the audio information.

Do not attach tape or paper to the label side of the disc and always be careful not to leave fingerprints on the side that is played.

● **Storing Compact Discs**

Store Compact Discs in a location protected from direct sunlight, high heat and humidity and extremely high and low temperatures. Discs should never be left in the trunk or interior of an automobile in the sun since the temperature can become very high in such a closed environment.

Always store Compact Discs in the holders in which they were sold. Never leave a disc in the player's disc holder for a long period of time.

Not this way
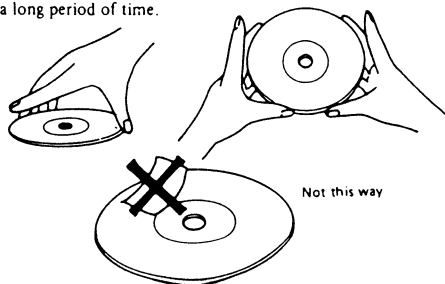
SERVICE PROCEDURES

1. Safety-check out

After correcting the original service problem,perform the following safety check before releasing the set to the customer:

Connect the insulating-resistance tester between the plug of power supply cord and chassis.

Specifications:More than 10Mohm at 500V.

● **Cleaning Compact Discs**

Before playing a disc wipe off the playing surface with a soft cloth to remove dust and other soil. Wipe the surface in straight lines from the center of the disc outward, not in a circular motion as you would with a phonograph record.

Do not use benzene, chemical cleansers or phonograph record cleaning solutions to clean Compact Discs. Also avoid static electricity prevention solutions since they can damage the surface of Compact Discs.
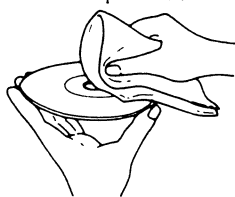
Problems Caused by Dew

Dew can form inside a Compact player when it is brought from a cold environment into a warm room, when a room is rapidly heated and if a player is left in a humid environment.

This dew can prevent the laser pickup from reading the data contained in the pits in the disc surface. If the player does not operate properly because of dew, remove the disc and leave the player's power switch on for about one hour to remove all moisture.

CAUTION ON REPLACEMENT OF OPTICAL PICKUP

The laser diode in the optical pickup block is so sensitive to static electricity,surge current and etc, that the components are liable to be broken down or its reliability remarkably deteriorated.

During repair,carefulley take the following precautions. (The following precautions are included in the service parts.)

PRECAUTIONS

1.Ground for the work-desk.
  Place a conductive sheet such as a sheet of copper (with inpedance lower than 10MΩ) on the work-desk and place the set on the conductive sheet so that the chassis.

2.Grounding for the test equipment and tools.
  Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.

3.Grounding for the human body.
  Be sure to put on a wrist-strap for grounding whose other end is grounded.
  Be particularly careful when the workers wear synthetic fiber clothes, or air is dry.

4.Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.

5.Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.

Care Should be taken with the optical pickup.

The optical pickup is sensitive to static electricity,surge currents,and other high electrical noise, and because there is the possibility of damage to performance, in the handling of the pickup, the utmost care must be taken, particularly with regard to static electricity.

1. When checking the laser terminal, avoid making connections using the probes of a tester or oscilloscope, or an ordinary power supply.

2. When replacing the optical pickup, first short the LD terminals and remove the connector. Also, when attaching the new optical pickup, after attaching the connector, unsolder the LD terminals.

Terminal

LD

Optical pickup
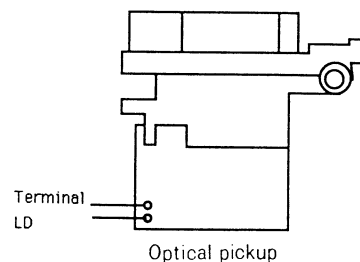
PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMMISION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

LASER WARNING LABELS

The label shown below are affixed.

1. **Warning labels**
   These labels are located on the arm of mechanism and the back panel.

Ⓐ

DANGER —INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM

CAUTION —HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED

ATTENTION —RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ECLENCHEMENT DE SECURITE ANNULE.

Ⓑ

Laser Diode Properties

- Material: GaAS/GaAlAs
- Wavelength: 780nm
- Emission Duration: continuous
- Laser output: max. 0.5mW*
  *This output is the value measured at a distance about 1.8mm from the objective lens surface on the Optical Pick-up Block.

2. **Class 1 label**
   This label is located on the back panel.

"CLASS 1 LASER PRODUCT"

LUOKAN 1
LASERLAITE

KLASS 1
LASER APPARAT
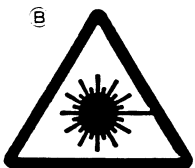
IC BLOCK DIAGRAM AND DESCRIPTIONS

CXA1571S (RF Amp)
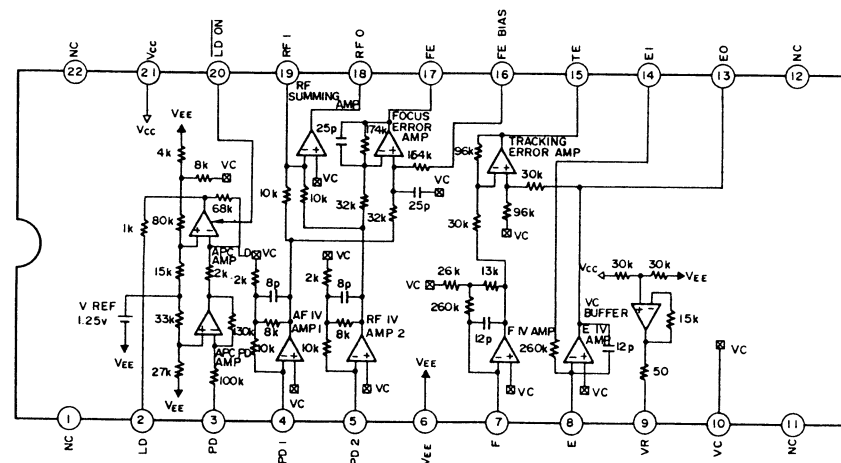
Pin No.	Symbol	I/O	Description
2	LD	O	Output terminal of APC amplifier.
3	PD	I	Input terminal of APC amplifier.
4	PD1	I	Inversion input terminal for RF I-V amplifier. Connect to photo diode A+C.
5	PD2	I	Inversion input terminal for RF I-V amplifier. Connect to photo diode B+D.
7	F-IN	I	Inversion input terminal for F I-V amplifier. Connect to photo diode F.
8	E-IN	I	Inversion input terminal for E I-V amplifier. Connect to photo diode E.
9	VR	O	DC voltage output of (Vcc+V$_{EE}$)/2.
10	VC	I	Middle point voltage input terminal.
13	EO	O	Monitor output terminal for I-V amplifier E.
14	EI	-	Gain adjustment terminal for I-V amplifier E.
15	TE	O	Tracking error amplifier output terminal. The signal E-F is output from this terminal.
16	FE-BIAS	I	Bias adjustment terminal for non-inversion side of focus error amplifier.
17	FE	O	Focus error amplifier output terminal.
18	RFO	O	RF amplifier output terminal.
19	RFI	I	Inversion input terminal of RF amplifier.
20	LD-ON	I	Change-over terminal for APC amplifier.

CXA1372S (Servo Signal Processor)

PIN.NO.	SYMBOL	I/O	DESCRIPTION
1	TE	I	Tracking error input terminal.
2	TDFCT	I	Capacitor connection terminal for time constant when defect.
3	ATSC	I	Window comparator input terminal for ATSC detection.
4	FZC	I	Focus zero-cross comparator input terminal.
5	FE	I	Focus error input terminal.
6	FDFCT	I	Capacitor connection terminal for time constant when detect.
7	VC	I	Mid-point voltage input terminal.
8	FGD	I	Connect the capacitor between pin 9 and this pin when the high frequency gain of focus servo is dropped.
9	FS3	I	Focus servo high frequency gain changeover input terminal.
10	FLB	I	Input terminal for the low frequency boost of focus servo.
11	FEO	O	Focus drive output terminal.
12	FE-	I	Inversion input terminal of focus amplifier.
13	SRCH	I	Time constant terminal to make the focus search waveform.
14	TGU	I	Tracking high frequency gain changeover input terminal.
15	TG2	I	Tracking high frequency changeover input terminal.
17	TAO	O	Tracking drive output terminal.
18	TA-	I	Inversion input terminal of tracking amplifier.
19	SL+	I	No-inversion input terminal of sled amplifier.
20	SLO	O	Sled(slide) drive output terminal.
21	SL-	I	Inversion input terminal of sled amplifier.

PIN.NO.	SYMBOL	I/O	DESCRIPTION
22	FSET	I	Peak setting input of phase correction of focus tracking.
23	ISET	I	This terminal is flowed the current so that the focus search, tracking jump, and sled kick height is decided.
24	SSTOP	I	Inner switch selection input terminal.
26	DIRC	I	This terminal is used when a track jump.
27	LOCK	I	The sled runaway prevention circuit operates at the low level.
28	CLK	I	Serial data transfer clock input from microprocessor.
29	XLT	I	Latch input from microprocessor.
30	DATA	I	Serial data input from microprocessor.
31	XRST	I	Reset input terminal. Active low.
32	C. OUT	O	Signal output to count the track numbers.
33	SENS	O	This terminal outputs FZC, and SSTOP to according command from microprocessor.
35	MIRR	O	Mirror comparator output terminal.
36	DFCT	O	Defect comparator output terminal.
37	ASY	I	Auto asymmetry control input terminal.
38	EFM	O	EFM comparator output terminal.
39	FOK	O	Focus OK comparator output terminal.
40	CC1	O	Defect bottom hold output terminal.
41	CC2	I	Defect bottom hold input terminal from CC1.
43	CB	I	Defect bottom hold capacitor connection terminal.
44	CP	I	Mirror hold capacitor connection terminal.
45	RFI	I	RF summing amplifier input terminal.
46	RFO	O	RF summing amplifier output terminal.
48	TZC	I	Tracking zero-cross comparator input terminal.

## YM3433(18 bits/8 times Oversampling Digital Filter)

| Pin No.	Terminal	Function
1	SHL	ST=L(1 DAC):L channel deglitch signal output. ST=H(2 DACs):L and R channels deglitch signal output. (Not used.)
2	XO	Connect the crystal oscillator for the system clock to these
3	XI	terminals.
4	VDD2	Power supply terminal for crystal oscillator and deglitch signal system.
5	BCI	Bit clock input terminal of input data.
6	SDSY	Clock input terminal to show the input timing and L/R channels partitioned of input data.
7	SDI	Data input terminal.
8	VDD1	Power supply terminal.(Connect to 5V.)
9	DLO	ST=L(1 DAC):L and R channels data output terminal. ST=H(2 DAC):L channel data output terminal.
10	DRO	R channel data output terminal.
11	WCO	Word clock output terminal for output data DLO/DRO.
12	BCO	Bit clock output terminal for output data DLO/DRO.
13	VSS	Ground terminal.
14	ST	1 DAC/2 DAC selection terminal.(1 DAC at low level and 2 DAC at high level.)
15	16/18	Bit number selection terminal.(16 bits at low level and 18 bits at high level.)
16	SHR	1 DAC(ST=L):R channel deglitch signal output.(Not used.)

CXD2500AQ (Digital Signal Processor)
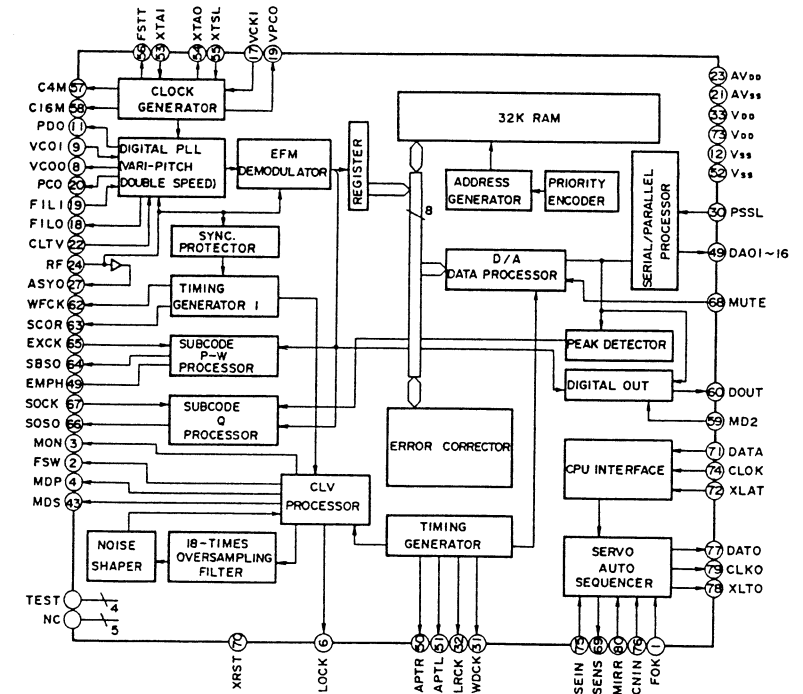
LB1639 (Volume Motor Drive)
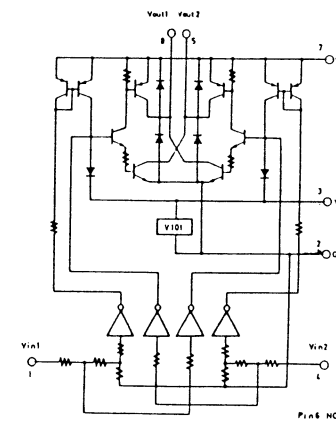
## 74HC164(8-bits Serial/Parallel Output Shift Register)

TRUTH TABLE

Inputs				Outputs		
Clear	Clock	A	B	QA	QB	QH
L	×	×	×	L	L	L
H	L	×	×	QAO	QBO	QHO
H	↑	H	H	H	QAn	QGn
H	↑	L	×	L	QAn	QGn
H	↑	×	L	L	QAn	QGn
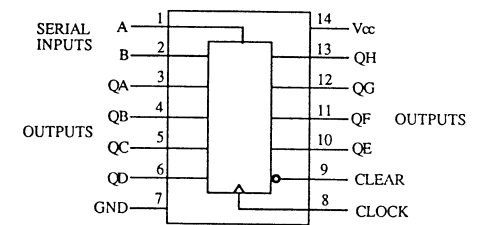
NO.	SYMBOL	I/O	DESCRIPTION
1	FOK	I	Focus OK input
2	FSW	O	Output filter changeover output of spindle motor
3	MON	O	Spindle motor control output
4	MDP	O	Spindle motor servo control
5	MDS	O	Spindle motor servo control
6	LOCK	O	H when GFS is high
7	NC		
8	VCOO	O	Oscillation circuit output for analog FEM PLL
9	VCOI	I	Oscillation circuit input for analog EFM PLL (8.6436MHz)
10	TEST	I	Test terminal
11	PDO	O	Charge pump output for analog EFM PLL
12	Vss		Ground terminal
13-15	NC		
16	VPCO	O	PLL charge pump output for variable pitch
17	VCKI	I	Clock input for variable pitch from VCO (16.934MHz)
18	FILO	O	Filter output for master PLL
19	FILI	I	Filter input for master PLL
20	PCO	O	Charge pump output for master PLL
21	AVss		Analog ground
22	CLTV	I	VCO control voltage input for master
23	AVDD		Analog section power supply (+5V)
24	RF	I	EFM signal input
25	TEST2	I	Connect to the ground.
26	TEST3	I	Connect to the ground.
27	ASYO	O	EFM full swing output
28	TEST4	I	Connect to the ground.
29	NC		
30	PSSL	I	Audio data output mode changeover input. Serial data at L and paraller data at H.
31	WDCK	O	D/A interface for 48 bits slot. Word clock f=2Fs.
32	LRCK	O	D/A interface for 48 bits slot. LR clock f=Fs.
33	VDD		Power supply terminal (+5V)
34-49			Data output terminals

			PSSL=1	PSSL=0
34	DA16	O	DA16	Serial data of 48 bits slot
35	DA15	O	DA15	Bit clock of 48 bits slot
36	DA14	O	DA14	Serial data of 64 bits slot
37	DA13	O	DA13	Bit clock of 68 bits slot
38	DA12	O	DA12	LR clock of 68 bits slot
39	DA11	O	DA11	GTOP output
40	DA10	O	DA10	XUGF output
41	DA09	O	DA09	XPLCK output

NO.	SYMBOL	I/O	DESCRIPTION
42	DA08	O	DA08 GFS output
43	DA07	O	DA07 RFCK output
44	DA06	O	DA06 C2P0 output
45	DA05	O	DA05 XRAOF output
46	DA04	O	DA04 MNT3 output
47	DA03	O	DA03 MNT2 output
48	DA02	O	DA02 MNT1 output
49	DA01	O	DA01 MNT0 output
50	APTR	O	Control output for aperture correction. H when Rch.
51	APTI	O	Control output for aperture correction. H when Lch.
52	Vss		Ground
53	XTAI	I	Crystal oscillation circuit input of 16.9344MHz or 33.8688MHz input
54	XTAO	O	Crystal oscillation circuit output of 16.9344MHz
55	XTSL	I	Crystal selection input terminal. L when 16.9344MHz. H when 33.8688MHz.
56	FSTT	O	2/3 divided output of pins 53 & 54
57	C4M	O	4.2336MHz output
58	C16M	O	16.9344MHz output
59	MD2	I	Digital output control input. On at H & Off at L.
60	DOUT	O	Digital output
61	EMPH	O	Emphasis control output. Active H.
62	WFCK	O	Write frame clock output
63	SCOR	O	Sub-code detection output. H when is detected S0 or S1.
64	SBSO	O	Serial output of sub code (P~W)
65	EXCK	I	Clock input for read out SBSO
66	SQSO	O	Sub Q 80 bits, PCM peak, and level data 16 bits output
67	SQCK	I	Clock input for read out SQSO
68	MUTE	O	Muting control output. Active H.
69	SENS	-	Sens output. Output to microprocessor
70	XRST	I	System reset. Rest at low level.
71	DATA	I	Serial data input from microprocessor
72	XLTA	I	Latch input from microprocessor. Latch the serial data at trailing.
73	VDD		Power supply
74	CLOK	I	Serial data transfer clock input from microprocessor
75	SEIN	I	Sens input from SSP
76	CNCI	I	Track jump numbers count signal input
77	DATO	O	Serial data output to SSP
78	XLTO	O	Serial data latch output to SSP. Latch at trailing.
79	CLKO	O	Serial data transfer clock output to SSP
80	MIRR	I	Mirror signal input

Note:SSP:Q104 CXA1372S

LA6510 (Power OP Amp)

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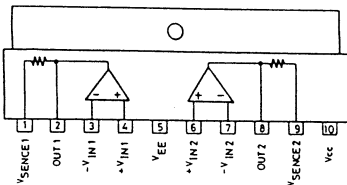
SM5861AP (D/A converter)
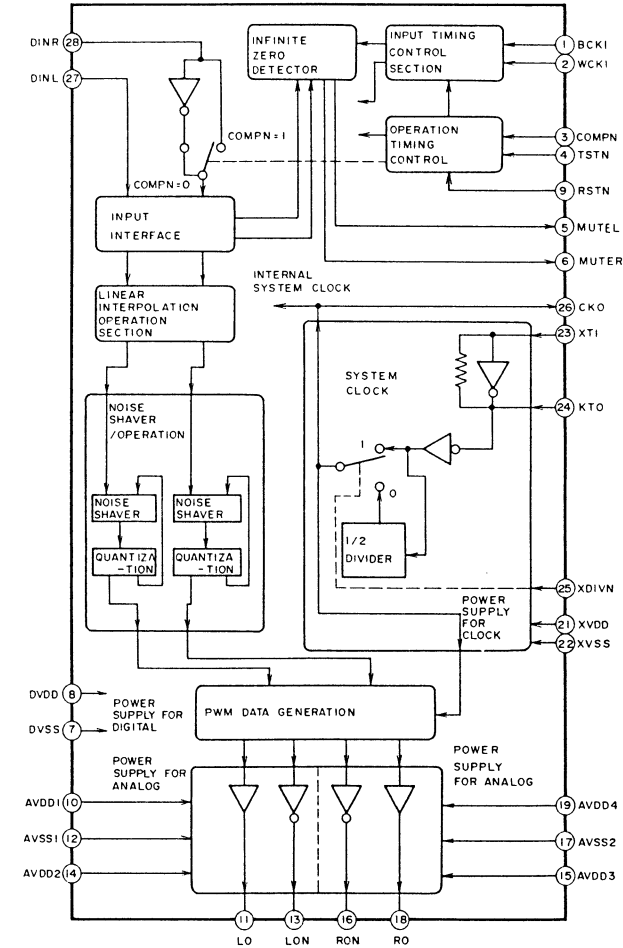
| Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	BCKI	Serial input data bit clock	15	AVDD3	5V supply for analogue section
2	WCKI	Input data word clock	16	RON	Data output
3	COMPN	Mode select of PWM output	17	AVSS2	Ground for analogue section
4	TSTN	Test terminal	18	RO	Data output
5	MUTEL	Muting output for left channel	19	AVDD4	Ground for analogue section
6	MUTER	Muting output for right channel	20	NC	
7	DVSS	Ground for digital section	21	XVDD	5V supply for clock section
8	DVDD	5V power supply for digital section	22	XVSS	Ground for clock section
9	RSTN	Reset input	23	XTI	Crystal oscillator input
10	AVDD1	5V supply for analogue section	24	XTO	Crystal oscillator output
11	LO	Data output	25	XDIVN	System clock select
12	AVSS1	Ground for analogue section	26	CKO	Clock output
13	LON	Data output	27	DINL	Serial data input for left channel
14	AVDD2	5V supply for analogue section	28	DINR	Serial data input for right channel

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CXP50112-369Q (Microprocessor)

M51943ASL (Rest IC)

Pin No.	Symbol	Description
1~4	A0~A3	Music file address signal.
5~20	a~p	Fluorescent indicator tube segment drive output terminals.
21~28	1G~8G	Fluorescent indicator tube grid drive output terminals.
29	SCOR	Synchronizing signal detection input terminal of sub code frame.
31	5V	
32	XRST	Reset input terminal.Reset at the low level.
33,34	5V	
35~41	AD0~AD6	AD input terminal.Connect to the operation key.
42	CE	Chip enable terminal.
43	GND	
45	DATA	Serial data output terminal.
46	SQSO	Subcode Q input terminal.
47	SQCK	Subocde Q read clock input/output terminal.
48	CLK	Serial data transmission clock output terminal.
49	XLT	Command execution output terminal.
50	MUTE	Muting ON/OFF control output terminal.ON at the high level.
51	OPEN	Tray open control output terminal.Open at the low level.
52	CLOSE	Tray close control output terminal.Close at the low level.
53	VR-	Volume control output.
54	VR+	Volume control output.
55	SENS	Interface of signal processor and microprocessor ICs.
56	FOK	Focus OK input terminal.Focus OK at the high level.
57	INSW	Tray close detection input terminal.
58	OUTSW	Tray open detection input terminal.
59	MD2	Digital output control output.
60	NRSCO	Remote control signal (RI signal) output terminal.
61	NRSCI	Remote control signal (RI signal) input terminal.
62	RMCN	Remote control signal input terminal.
63~70	D0~D7	Music file data signal.
71	Vss	Ground terminal.
72	XTAL	Clock output terminal.
73	5V	
74	C4M	System clock input terminal.
75	5V	
76	VF	Negative power supply terminal for fluorescent indicator tube.
77	LSR	Optical pickup control output terminal.On at the low level.
78	WR	Music file read/write control signal.
79	SFT	Music file shift signal. Control the serial data at the rise pulse.
80	A4	Music file address signal.

PACKING VIEW

REF NO.	PART NO.	DESCRIPTION
1	29110071	Damplon tape
2	29100037A	500×650mm,Styrene bag
3	29091434Y	Pad R
4	29091433Y	Pad L
5	282301	Sealing hook
6	29052372Y	Master carton box <DX-6920BH>
	29052373Y	Master carton box <DX-6920S>
	29052375Y	Master carton box <DX-6930BH>
	29052376Y	Master carton box <DX-6930S>
	Accessary bag ass'y	
	2010098A	Connection cord
	2010200	Remote control cord
	24140196Y	RC-196C,Remote control transmitter <DX-6920>
	24140221Y	RC-221C,Remote control transmitter <DX-6930>
	29341706Y	Instruction manual
	3010054	UM-3,Two batteries
	29100097	350×250,Styrene bag
	29365020E	Warranty card
	29100094A	Styrene bag for warranty card

NOTE: <BH>:Black model only

<S>:Silver model only
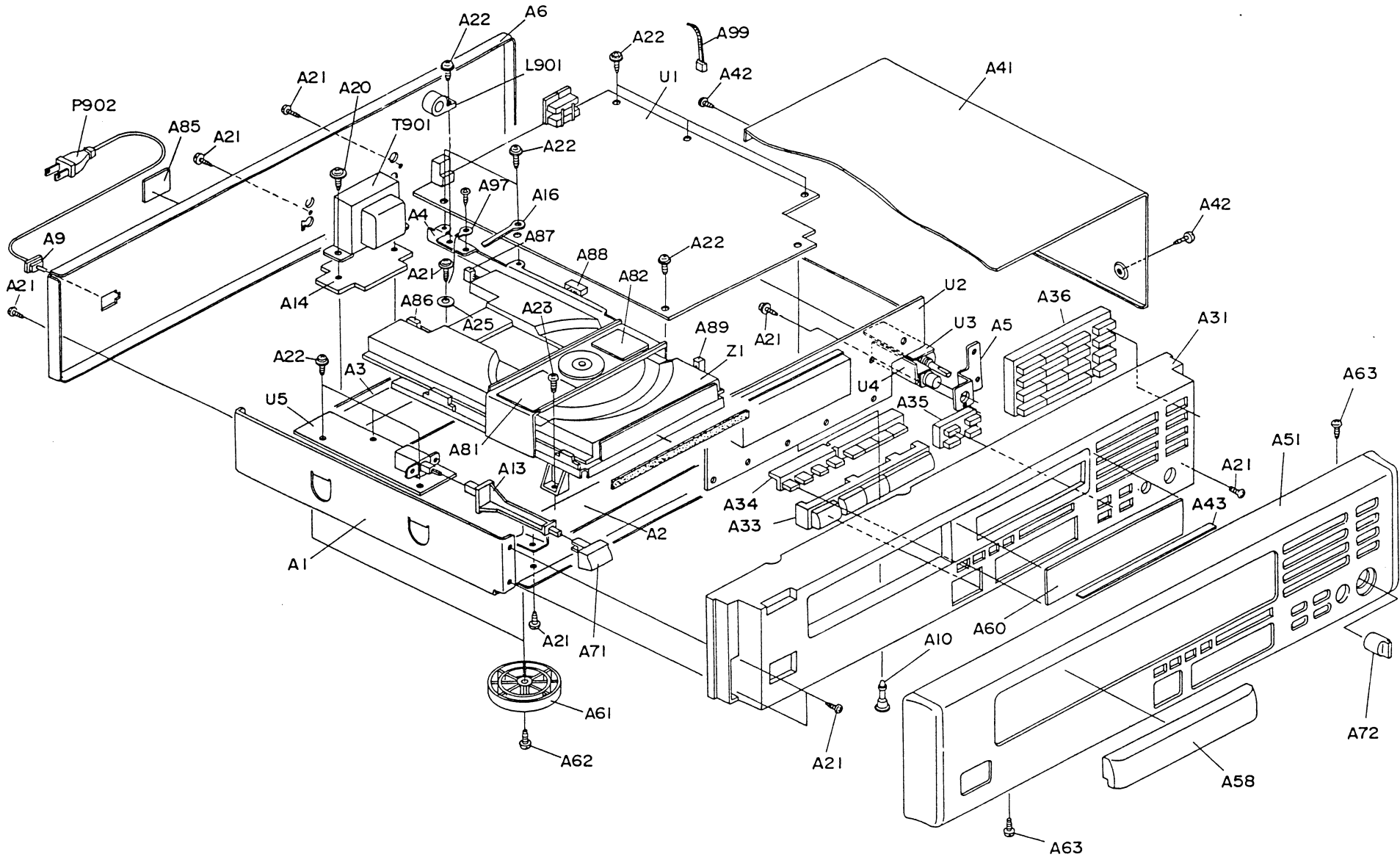
PARTS LIST

DX-6920

REF.NO.	PART NO.	DESCRIPTION
A1	27100227BY	Chassis
A2	27141520Y	Bracket F
A3	27141521Y	Bracket R
A4	27130642Y	Bracket C
A5	27141522Y	Bracket HP
A6	27121564Y	Back panel
A9	27300750	⚠ Bushing
A10	27190524	KGLS-14R,Holder
A13	27273149Y	Joint,power
A14	27270214B	Spacer
A16	27255004	CS-1U,Clip
A19	834426068	2.6TTS+6B(BC),Self-tapping screw
A20	830440109	4TTC+10C(BC),Self-tapping screw
A21	834430088	3TTS+8B(BC),Self-tapping screw
A22	831130088	3TTW+8B,Self-tapping screw
A23	833430080	3TTP+8P(BC),Self-tapping screw
A24	87643010	W3×10F(BC),Washer
A31	27110689Y	Front bracket ass'y <B>
	27110690Y	Front bracket ass'y <S>
A33	28324570Y	Knob,play <B>
	28324571A	Knob,play <S>
A34	28324578Y	Knob FF <B>
	28324579Y	Knob FF <S>
A35	28324580Y	Knob REP <B>
	28324581Y	Knob REP <S>
A36	28324574Y	Knob TEN <B>
	28324575A	Knob TEN <S>
A37	27150344	Shield plate P <S>
A38	27150345	Shield plate <S>
A41	28184469Y	Top cover
A42	834430088	3TTS+8B(BC),Self-tapping screw
A43	28140680	0.5×8×180,Cushion
A51	1H196701K	Front panel ass'y <B>
	1H197701K	Front panel ass'y <S>
	28125222AY	End cap L
	28125223AY	End cap R
A58	27211397Y	Tray panel <B>
	27211398	Tray panel <S>
A60	28191623AY	Clear plate

REF.NO.	PART NO.	DESCRIPTION
A61	27175254Y	Leg
A62	834430088	3TTS+8B(BC),Self-tapping screw
A63	833430080	3TTP+8P(BC),Self-tapping screw
A71	28324140	Knob,power <B>
	28324184	Knob,power <S>
A72	28324564Y	Knob,level <B>
	28324565Y	Knob,level <S>
A81	29360807	Label DANGER
A82	29361218	Label LASER
A85	29360687	Label CLASS1
A86	2000951	NSAS-8P903,Socket
A87	2000952	NSAS-8P904,Socket
A88	2002390810	NSAS-8P0120,Socket
A89	2002391020	NSAS-10P0119,Socket
A97	2061112100	Cord ass'y
A99	260208	Binder
L901	230910	⚠ ESD-R-25DB,Core
P901	253164Y or	⚠ AS-CEE250V2.5A,
	253149	⚠ Power supply cord
T901	2300776Y	⚠ NPT-1138P,Power transformer
U1	1H194516-1A	NAAR-4416-1A,Main circuit pc board ass'y
U2	1H194517-1	NADIS-4417-1,Display circuit pc board ass'y
U3	1H194518-1	NAAF-4418-1,Headphone amplifier pc board ass'y
U4	1H194519-1	NAAF-4419-1,Headphone terminal pc board ass'y
U5	1H194520-1	NAPS-4420-1,Power supply circuit pc board ass'y
U6	1H194521-1	NAPS-4421-1,Terminal pc board ass'y
Z1	24800001Y	NCD-113S,CD mechanism ass'y

NOTE: <B>:Black model only

<S>:Silver model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

PARTS LIST

DX-6930

REF. NO.	PART NO.	DESCRIPTION
A1	27100227BY	Chassis
A2	27141520Y	Bracket F
A3	27141521Y	Bracket R
A4	27130642Y	Bracket C
A5	27141522Y	Bracket HP
A6	27121568Y	Back panel
A9	27300750	⚠ Bushing
A10	27190524	KGLS-14R,Holder
A13	27273149Y	Joint,power
A14	27270214B	Spacer
A16	27255004	CS-1U,Clip
A19	834426068	2.6TTS+6B(BC),Self-tapping screw
A20	830440109	4TTC+10C(BC),Self-tapping screw
A21	834430088	3TTS+8B(BC),Self-tapping screw
A22	831130088	3TTW+8B,Self-tapping screw
A23	833430080	3TTP+8P(BC),Self-tapping screw
A24	87643010	W3×10F(BC),Washer
A31	27110689Y	Front bracket ass'y <B>
	27110690Y	Front bracket ass'y <S>
A33	28324570Y	Knob,play <B>
	28324571A	Knob,play <S>
A34	28324572Y	Knob FF <B>
	28324573Y	Knob FF <S>
A35	28324576Y	Knob REP <B>
	28324577Y	Knob REP <S>
A36	28324574Y	Knob TEN <B>
	28324575A	Knob TEN <S>
A37	27150344	Shield plate P <S>
A38	27150345	Shield plate <S>
A41	28184469Y	Top cover
A42	834430088	3TTS+8B(BC),Self-tapping screw
A43	28140680	0.5×8×180,Cushion
A51	1H192701K	Front panel ass'y <B>
	1H193701K	Front panel ass'y <S>
	28125222AY	End cap L
	28125223AY	End cap R
A58	27211397Y	Tray panel <B>
	27211398	Tray panel <S>
A60	28191623AY	Clear plate

REF. NO.	PART NO.	DESCRIPTION
A61	27175254Y	Leg
A62	834430088	3TTS+8B(BC),Self-tapping screw
A63	833430080	3TTP+8P(BC),Self-tapping screw
A71	28324140	Knob,power <B>
	28324184	Knob,power <S>
A72	28324564Y	Knob,level <B>
	28324565Y	Knob,level <S>
A81	29360807	Label DANGER
A82	29361218	Label LASER
A85	29360687	Label CLASS1
A86	2000951	NSAS-8P903,Socket
A87	2000952	NSAS-8P904,Socket
A88	2002390810	NSAS-8P0120,Socket
A89	2002391020	NSAS-10P0119,Socket
A97	2061112100	Cord ass'y
A99	260208	Binder
L901	230910	⚠ ESD-R-25DB,Core
P901	253164Y or	⚠ AS-CEE250V2.5A,
	253149	⚠ Power supply cord
T901	2300776Y	⚠ NPT-1138P,Power transformer
U1	1H190516-2A	NAAR-4416-2A,Main circuit pc board ass'y
U2	1H190517-2	NADIS-4417-2,Display circuit pc board ass'y
U3	1H190518-2	NAAF-4418-2,Headphone amplifier pc board ass'y
U4	1H190519-2	NAAF-4419-2,Headphone terminal pc board ass'y
U5	1H190520-2	NAPS-4420-2,Power supply circuit pc board ass'y
U6	1H190521-2	NAPS-4421-2,Terminal pc board ass'y
Z1	24800001Y	NCD-113S,CD mechanism ass'y

NOTE: <B>:Black model only

      <S>:Silver model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

MECHANISM-EXPLODED VIEW

PICKUP DRIVE UNIT-EXPLOVED VIEW
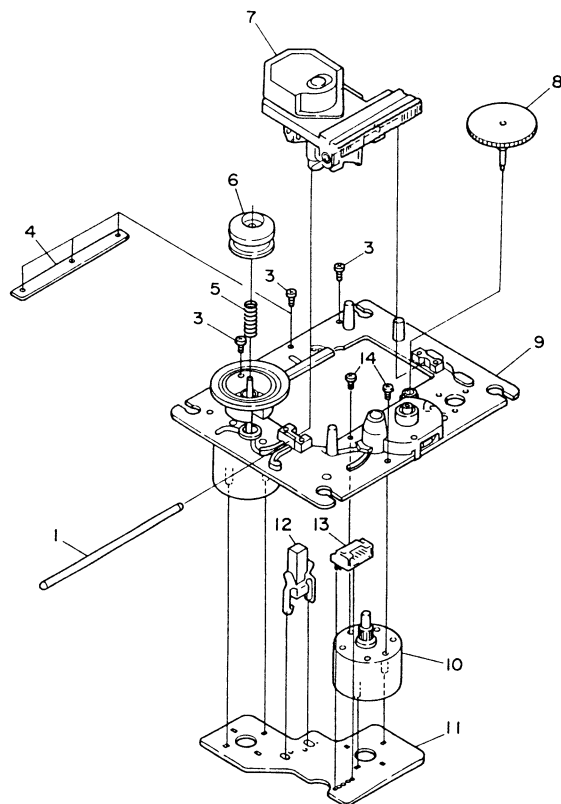

PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	24828003	Sled shaft	8	24810006	Wheel
2			9	24802003	Turntable chassis
3	801425	2×5,Self-tapping screw	10	24804004	Motor gear
4	24822004	Plate	11	24840007	Motor pc board
5	24820003	Spring	12	24840008	Leafswitch
6	24822005	Center ring	13	25050396	NSCT-4P223,Connector
7	24110008	KSS-210A,Optical pickup	14	82142003	2P+3F(BC),Pan head screw

PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	24506878	Tray	26	24602507	Belt
2	24506897	Damper	27	870144	Washer
3	28140980	Front tape	28	24506884	Loading pulley
4	838430108	3TTB+10B(BC),Self-tapping screw	29	833120047	2TTP+4S,Tapping screw
5	24506959	Chucking pulley	30	27301227	Middle gear
6	24506876	Chucking chassis	31	27301230	Tray holder
7	834126069	2.6TTS+6C,Self-tapping screw	32	24506888	Tray guide,left
8	24818004	Yoke damper	33	24506887	Tray guide,right
9	24832003	Magnet	34	838426038	2.6TTB+3C(BC),Self-tapping screw
10	24830001	Chucking yoke	35	27301228	Tray holder,front
11	24506879	Gear cover	36	27301224	Main chassis
12	801424	Screw with washer	37	24506890	Boss,back
13		KSM-2101AAM,Pickup drive unit	38	834120049	2TTS+4C,Self-tapping screw
14	24506870	Roller	39	25065402	Leafswitch
15	24506871	Plate	40	24506889	Boss,right
16	24506898	Sub chassis	41	24506890	Boss,left
17	24509401	Insulator	42	24506883	Control cam
18	27180442	Spring A	43	24506892	Link plate
19	27180441	Spring B	44	24506894	Stopper link
20		Shaft	45	24506893	Boss
21	24506864	Hinge holder	46	24506895	Spacer
22		Hinge	47	83112608	2.6TTW+8S,Self-tapping screw
23	838426108	2.6TTB+10B(BC),Self-tapping screw	48	25050393	Connector pin
24	8761301008	W3×10F,Washer	49	24505269	Motor pc board
25	24506882	Drive gear	50	24506886	Motor ass'y

REMOVEMENT OF DISC TRAY

Screw for stopper
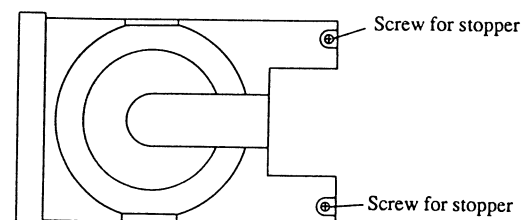
Screw for stopper

1.Loosen the screw for stopper until the head of
    screw and the tray are the same height.
2.Turn POWER switch to on.
3.Prees OPEN/CLOSE button to open the tray.
4.Turn POWER switch to off.
5.Remove the tray.
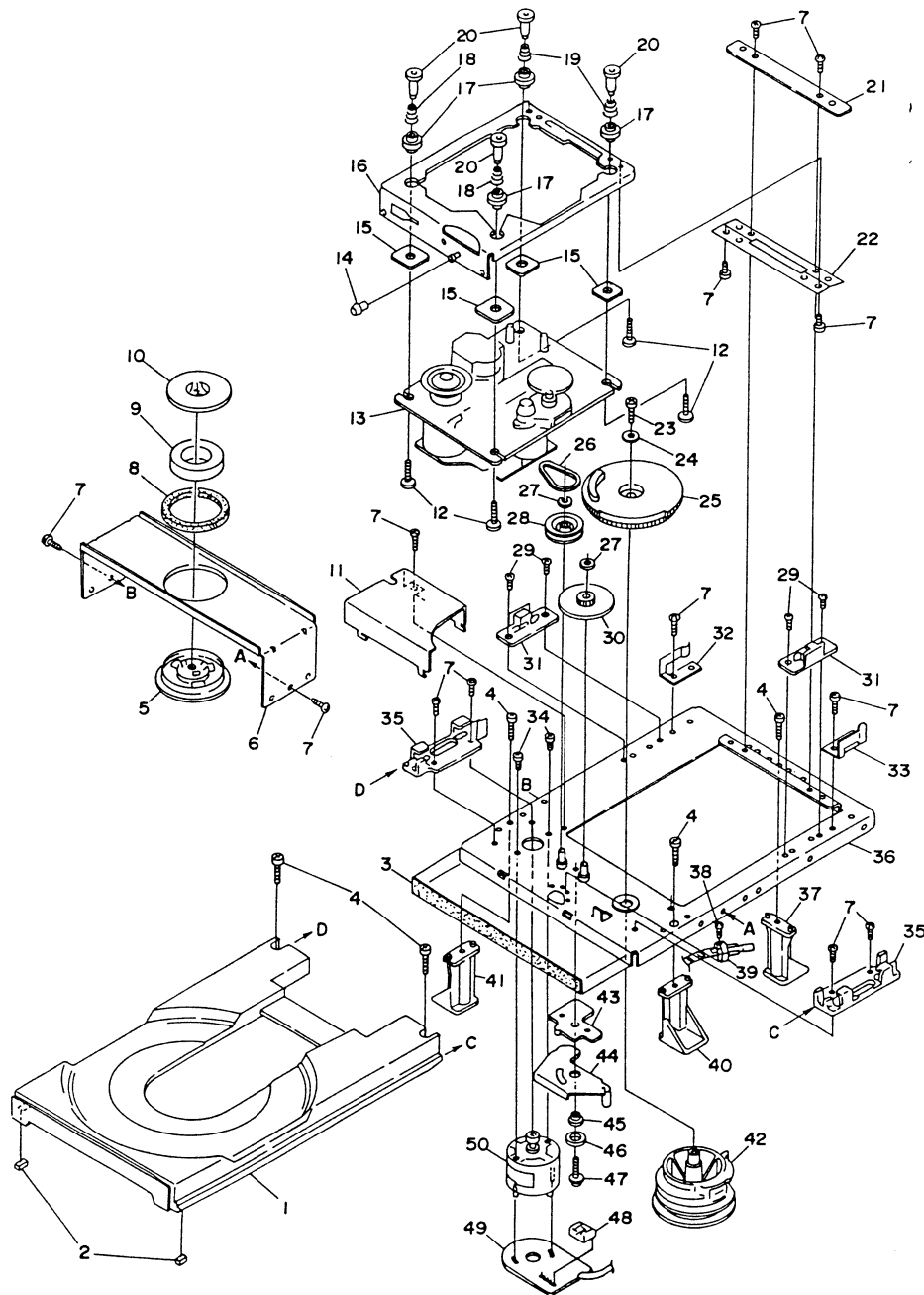
ADJUSTMENT PROCEDURES

Instruments required

Dual trace oscilloscope, Frequency counter, AF oscillator, Test disc (SONY YEDS-18), AC voltmeter, Jitter meter, and Socket P4(Part no. 25050138)

1. Focus offset adjustment

Load the test disc YEDS-18 on the tray and play the track 2.
Connect the oscilloscope or jitter meter to terminal P106.
(Oscilloscope)
Adjust R109 until a clear trace of waveform pattern as shown photo 1 appear on the oscilloscope.
When the amount of jitter is broad, set R109 to mechanical center.
(Jitter meter)
Adjust R109 until the jitter meter reading becomes minimum.(Less than 10ns.)
After adjustment, disconnect the oscilloscope or jittter meter.

Photo 1

HF +
1
2
GND
P106
Oscilloscope
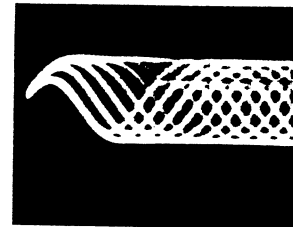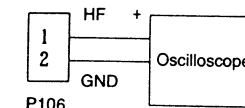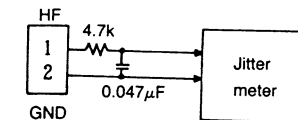
Oscilloscope range
Vertical : 0.5V/div.
Holizontal : 0.5 μs/div.
DC, Ground: Center

HF
1 4.7k
2
GND 0.047μF
Jitter meter

2. Tracking offset adjustment

Load the test disc YEDS-18 on the tray and play the track 2.
Turn R116 to minimum position.(Counter clockwise)
Connect the oscilloscope between pin 3 (TR) of P107 and pin 2 (GND) of P106.
Adjust R106 until the center of tracking error signal on the oscilloscope becomes GND level.
Turn R116 to the mechanical center.
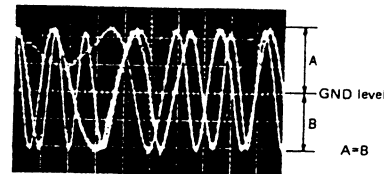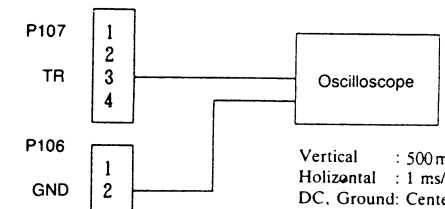After adjustment, disconnect the oscilloscope.

A
GND level
B
A=B

Photo 2

P107
1
2
TR 3
4

P106
1
GND 2

Oscilloscope

Vertical : 500mV/div.
Holizontal : 1 ms/div.
DC, Ground: Center

3. Focus gain adjustment

Set the output of AF oscillator to 1kHz, 1~1.5Vp-p.
Play the track 2 of test disc.
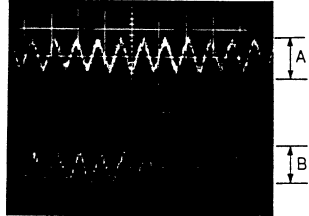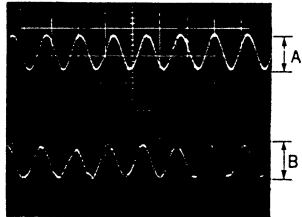Connect the oscilloscope and the AF oscillator as shown below.

Photo 3

A

B

AF oscillator
GND

Oscilloscope
CH 1   CH 2

P107   ① ② ③ ④

P106   ① ②   GND

Vertical   : 0.2V/div.
Holizontal: 0.2 ms/div.

Adjust R117 until 1kHz components of channels 1 and 2 on oscilloscope become same level.
After adjustment, disconnect the AF oscillator and the oscilloscope.

4. Tracking gain adjustment

Set the output of AF oscillator to 1.2kHz, 1~1.5Vp-p.
Play the track 2 of test disc.
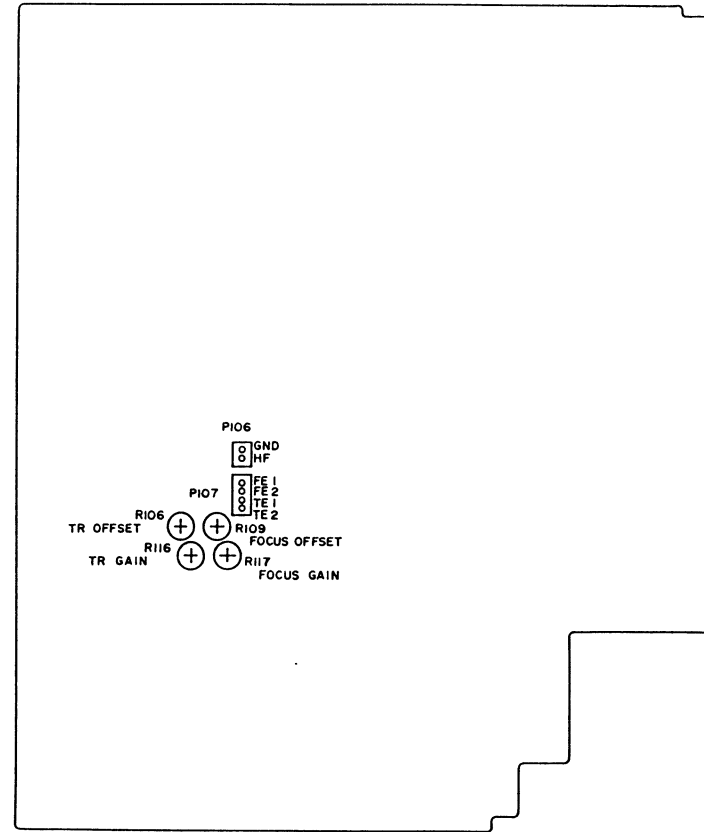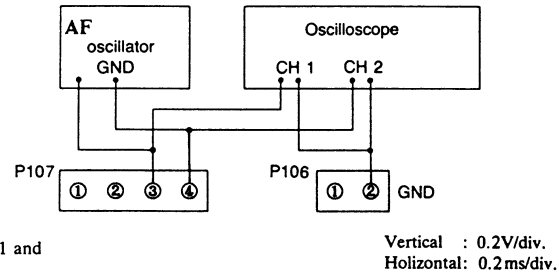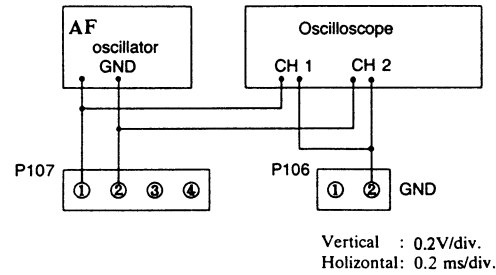Connect the oscilloscope and the AF oscillator as shown below.

Photo 4

A

B

AF oscillator
GND

Oscilloscope
CH 1   CH 2

P107   ① ② ③ ④

P106   ① ②   GND

Vertical   : 0.2V/div.
Holizontal: 0.2 ms/div.

Adjust R116 until 1.2kHz components of channels 1 and 2 on oscilloscope become same level.
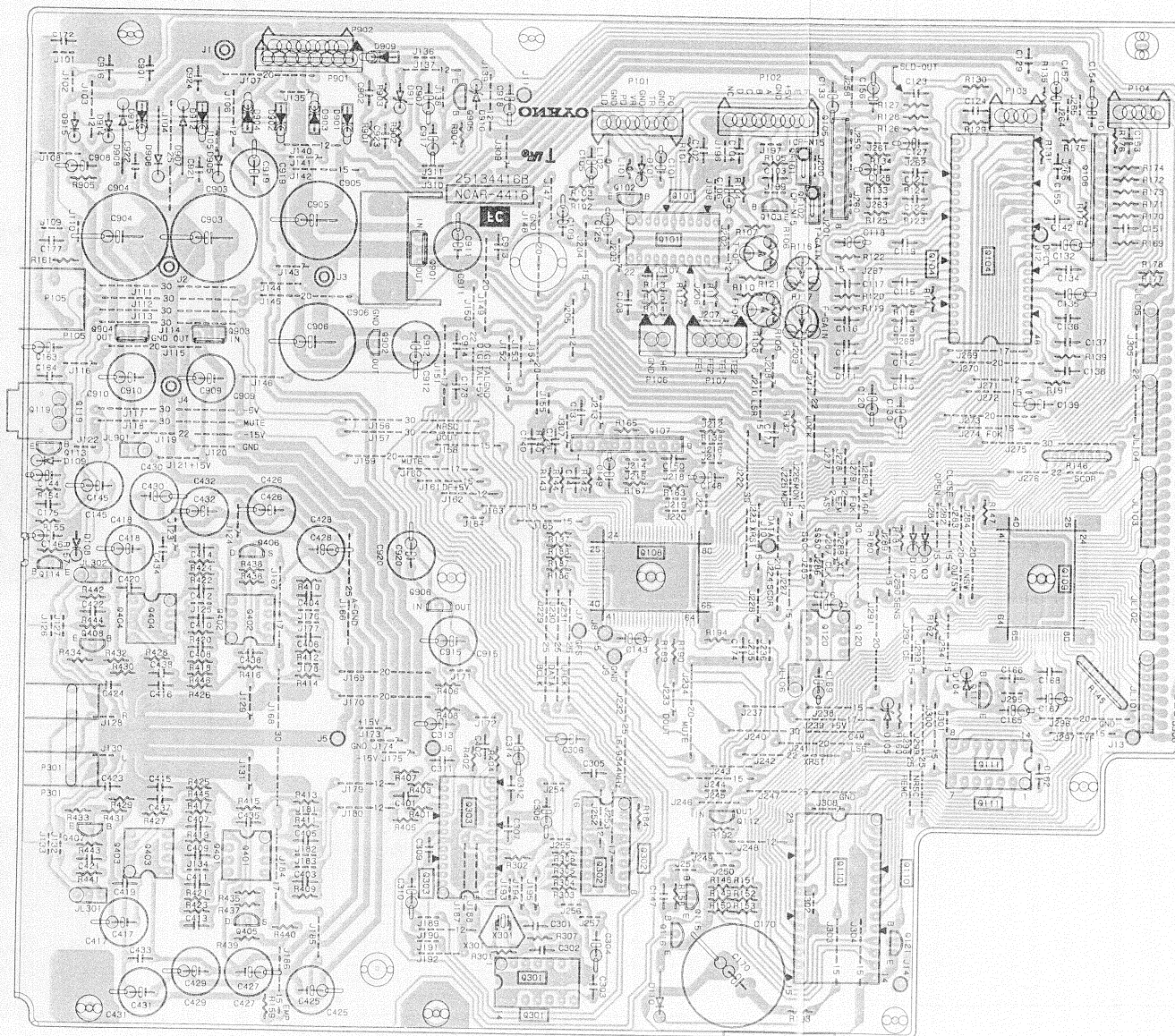After adjustment, disconnect the AF oscillator and the oscilloscope.

After adjustment, confirm that the center of tracking error signal becomes GND level.

PI06
GND
HF

PI07
FE 1
FE 2
TE 1
TE 2

RI06
TR OFFSET ⊕ ⊕ RI09
                  FOCUS OFFSET
       RII6
TR GAIN ⊕ ⊕ RII7
               FOCUS GAIN

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

MAIN CIRCUIT PC BOARD

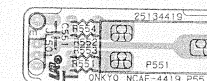HEADPHONE AMPLIFIER PC BOARD

HEADPHONE TERMINAL PC BOARD

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

MAIN CIRCUIT PC BOARD
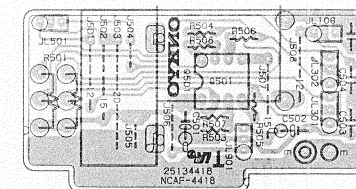
HEADPHONE AMPLIFIER PC BOARD

HEADPHONE TERMINAL PC BOARD

SCHEMATIC DIAGRAM
MODEL DX-6930

ONKYO CORPORATION

SCHEMATIC DIAGRAM
MODEL DX-6920

ONKYO CORPORATION
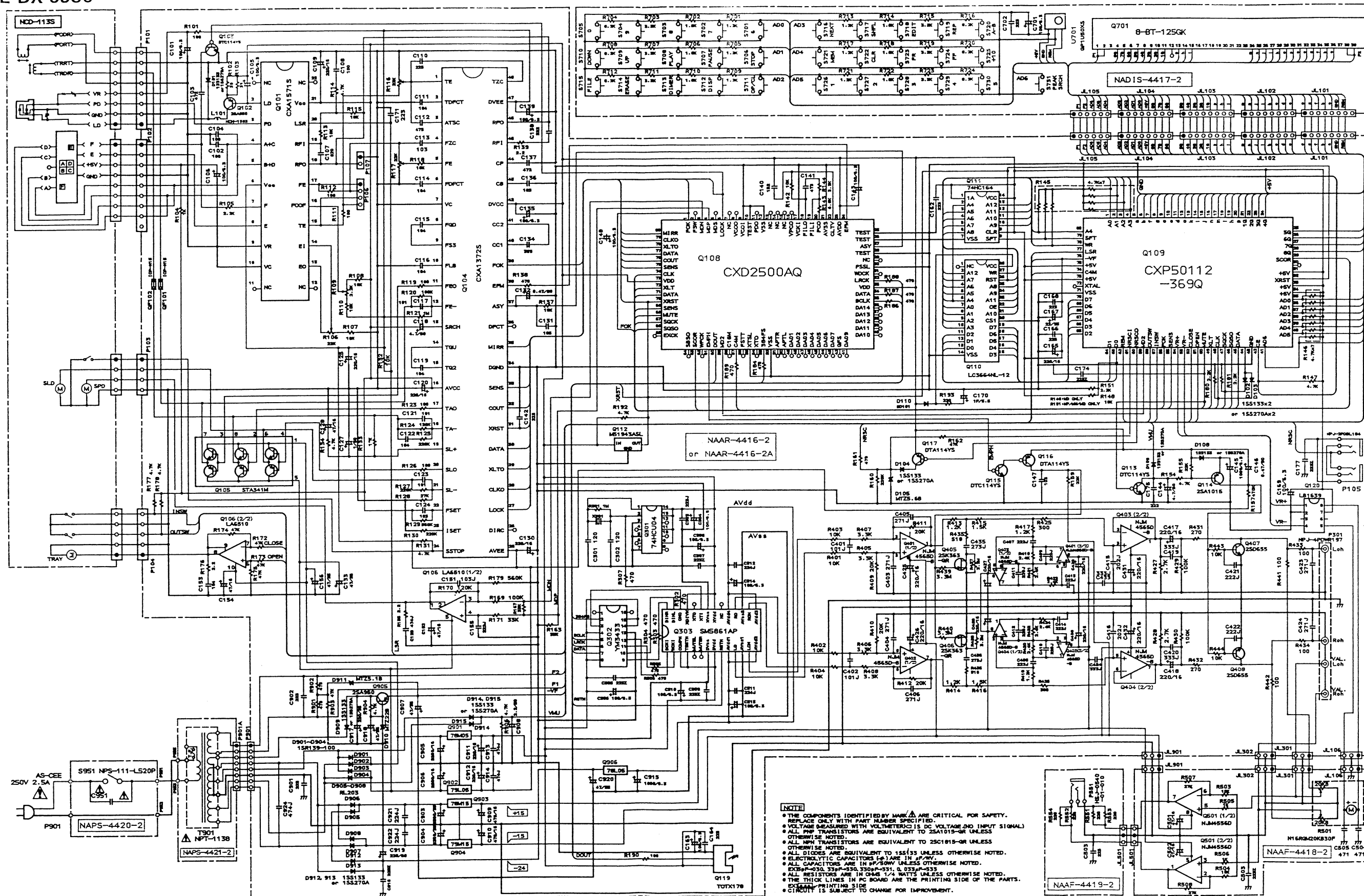
PRINTED CIRCUIT BOARD–PARTS LIST

MAIN CIRCUIT PC BOARD(NAAR-4416-1A/2A)

CIRCUIT NO.	PART NO.	DESCRIPTION
		ICs
Q101	22240404	CXA1571S
Q104	22240366	CXA1372S
Q106	22240034	LA6510
Q108	22240487	CXD2500AQ
Q109	22240585	CXP50116-369Q
Q110	22240198	◎ LC3664NL-12
Q111	222741645	◎ 74HC164
Q112	22240018	M51943ASL
Q120	22240322	◎ LB1639
Q301	222755	74HC04P
Q302	22240321	YM3433
Q303	22240520	SM5861AP
Q401-Q404	22240201	NJM4565D-B
Q901	222780055MIT	M5F78M05L
Q902	222790053	79L05
Q903	222780155MIT	M5F78M15L
Q904	222790155MIT	M5F79M15L
Q906	222780053	78L05
		Transistors
Q102,Q905	2211503 or	2SA950-O or
	2211504	2SA950-Y
Q103	221281	DTC114YS
Q105	22240168	STA341M-L
Q113,Q115	221281	DTC114YS
Q114	2211455	2SA1015-GR
Q116,Q117	2213090	DTA114YS
Q405,Q406	2212524	2SK363-GR
Q407,Q408	2211705 or	2SD655-E or
	2211706	2SD655-F
		Opto.module
Q119	24120031	TOTX178,Transmitter
		IC protectors
QF101,QF102	252112	⚠ ICP-N15
		Diodes
D101-D104	223163 or	1SS133 or
D108,D109	223205	1SS270A
D105	224450562	MTZ5.6B
D110	223191	◎ SD101
D901-D904	22380032	1SR139-100
D905-D908	22380045	RL203
D909	223163 or	1SS133 or
D912-D915	223205	1SS270A
D910	224452202	MTZ22B
D911	224450512	MTZ5.1B
		X'tal
X301	3010159	AT-38-169
		Coil
L101	233411K100	NCH-1383

CIRCUIT NO.	PART NO.	DESCRIPTION
		Capacitors
C101,C105	354721019	100μF,6.3V,Elect.
C103,C137	374724724	4700pF±5%,50V,Plastic
C106	354721019	100μF,6.3V,Elect.
C109,C120	354742219	220μF,16V,Elect.
C110	374722234	0.022μF±5%,50V,Plastic
C111	374721044	0.1μF±5%,50V,Plastic
C112,C141	374724734	0.047μF±5%,50V,Plastic
C113,C124	374721034	0.01μF±5%,50V,Plastic
C114-C116	374721044	0.1μF±5%,50V,Plastic
C118,C144	354780479	4.7μF,50V,Elect
C119,C122	374721044	0.1μF±5%,50V,Plastic
C125,C130	354742219	220μF,16V,Elect.
C127	354780109	1μF,50V,Elect.
C128,C152	354744709	47μF,16V,Elect.
C129	374724744	0.47μF±5%,50V,Plastic
C131,C136	374721034	0.01μF±5%,50V,Plastic
C132	354784799	0.47μF,50V,Elect.
C133,C156	354764709	47μF,35V,Elect.
C134	374723334	0.033μF±5%,50V,Plastic
C135,C139	354721019	100μF,6.3V,Elect.
C138,C155	374722224	2200pF±5%,50V,Plastic
C140	374721524	1500pF±5%,50V,Plastic
C143	354721019	100μF,6.3V,Elect.
C145	354721029	1000μF,6.3V,Elect.
C146	354784799	0.47μF,50V,Elect.
C147,C151	374721034	0.01μF±5%,50V,Plastic
C148,C149	354721019	100μF,6.3V,Elect.
C153	374721044	0.1μF±5%,50V,Plastic
C154	354744709	47μF,16V,Elect.
C163	354721019	100μF,6.3V,Elect.
C165	354742219	220μF,16V,Elect.
C167	354762209	22μF,35V,Elect.
C169	354721019	◎ 100μF,6.3V,Elect.
C170	3000058	◎ 1μF,5.5V,Super
C175	374722224	2200pF±5%,50V,Plastic
C304,C306	354721019	100μF,6.3V,Elect.
C308	354742219	220μF,16V,Elect.
C310	354721019	100μF,6.3V,Elect.
C311,C312	374722244	0.22μF±5%,50V,Plastic
C313,C314	354721019	100μF,6.3V,Elect.
C401,C402	373301014	100pF±5%,125V,PP
C403-C406	373302714	270pF±5%,125V,PP
C407,C408	374722224	2200pF±5%,50V,Plastic
C413,C414	374722224	2200pF±5%,50V,Plastic
C415,C416	372122024	2000pF±5%,50V,Styrole
C417,C418	354742219	220μF,16V,Elect.
C419,C420	374723334	0.033μF±5%,50V,Plastic
C421,C422	374722224	2200pF±5%,50V,Plastic
C423,C424	373302714	270pF±5%,125V,PP

CIRCUIT NO.	PART NO.	DESCRIPTION
		Capacitors
C425-C432	354742219	220μF,16V,Elect.
C433,C434	374723334	0.033μF±5%,50V,Plastic
C435,C436	374722734	0.027μF±5%,50V,Plastic
C903,C904	393163327	3300μF,35V,Elect.
C905,C906	354742229	2200μF,16V,Elect.
C907,C918	354764709	47μF,35V,Elect.
C908	354780229	2.2μF,50V,Elect.
C909,C910	354744719	470μF,16V,Elect.
C911,C912	354742219	220μF,16V,Elect.
C913,C914	375624744	0.47μF±5%,50V,Plastic
C915	354721029	1000μF,6.3V,Elect.
C917	354762219	220μF,35V,Elect.
C919	354764719	470μF,35V,Elect.
C920	354764709	47μF,35V,Elect.
C921,C922	374722244	0.22μF±5%,50V,Plastic
C924	374724744	0.47μF±5%,50V,Plastic
		Resistors
R106	5210066	N06HR22KBD,Semi-fixed
R109	5210060	N06HR2.2KBD,Semi-fixed
R116,R117	5210066	N06HR22KBD,Semi-fixed
R145	49163472407	◎ RM1/101J 4.7K×7,Array
R146	49163472407	RM1/101J 4.7K×7,Array
		Plugs
P101	25055152	NPLG-8P136
P102	25055153	NPLG-9P137
P103	25055148	NPLG-4P132
P104	25055149	NPLG-5P133
P106	25055038	NPLG-2P29
P107	25055045	NPLG-4P33
P901	25055138	NPLG-8P122
		Jack
P105	25045330	NPJ-2PDBL184
		Terminal
P301	25045353	● NPJ-2PDBL199,Output
	25045351	◎ NPJ-4PDWR197,Output
		Holder
	27190751	

DISPLAY CIRCUIT PC BOARD(NADIS-4417-1/2)

CIRCUIT NO.	PART NO.	DESCRIPTION
U701	24130003	GP1U50XS,Remote control sensor
S701-S712	25035548	NPS-111-S510,Push switches
S713-S715	25035548	◎ NPS-111-S510,Push switches
S716-S719	25035548	NPS-111-S510,Push switches
S720,S731	25035548	◎ NPS-111-S510,Push switches
S721-S730	25035548	NPS-111-S510,Push switches
Q701	212109	8-BT-125GK,FL tube
C701	353721019	100μF,6.3V,Elect. capacitor
	27190754Y	Holder FL

HEADPHONE AMPLIFIER PC BOARD(NAAF-4418-1/2)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q501	222654	NJM4556D,IC
C501,C502	354744709	47μF,16V,Elect. capacitor
R501	5142005A	● N16RGM20KB30F, Variable resistor
	5104242	◎ N16RGM20KB30F, Variable resistor

HEADPHONE TERMINAL PC BOARD(NAAF-4419-1/2)

CIRCUIT NO.	PART NO.	DESCRIPTION
P551	25045139	HSJ-0540-01-010, Headphone jack

POWER SUPPLY CIRCUIT PC BOARD(NAPS-4420-1/2)

CIRCUIT NO.	PART NO.	DESCRIPTION
C951	3500065A	⚠ DE7150FZ103PAC400V/ 125V,IS capacitor
S951	25035558	⚠ NPS-111-S520P, Power switch

TERMINAL PC BOARD(NAPS-4421-1/2)

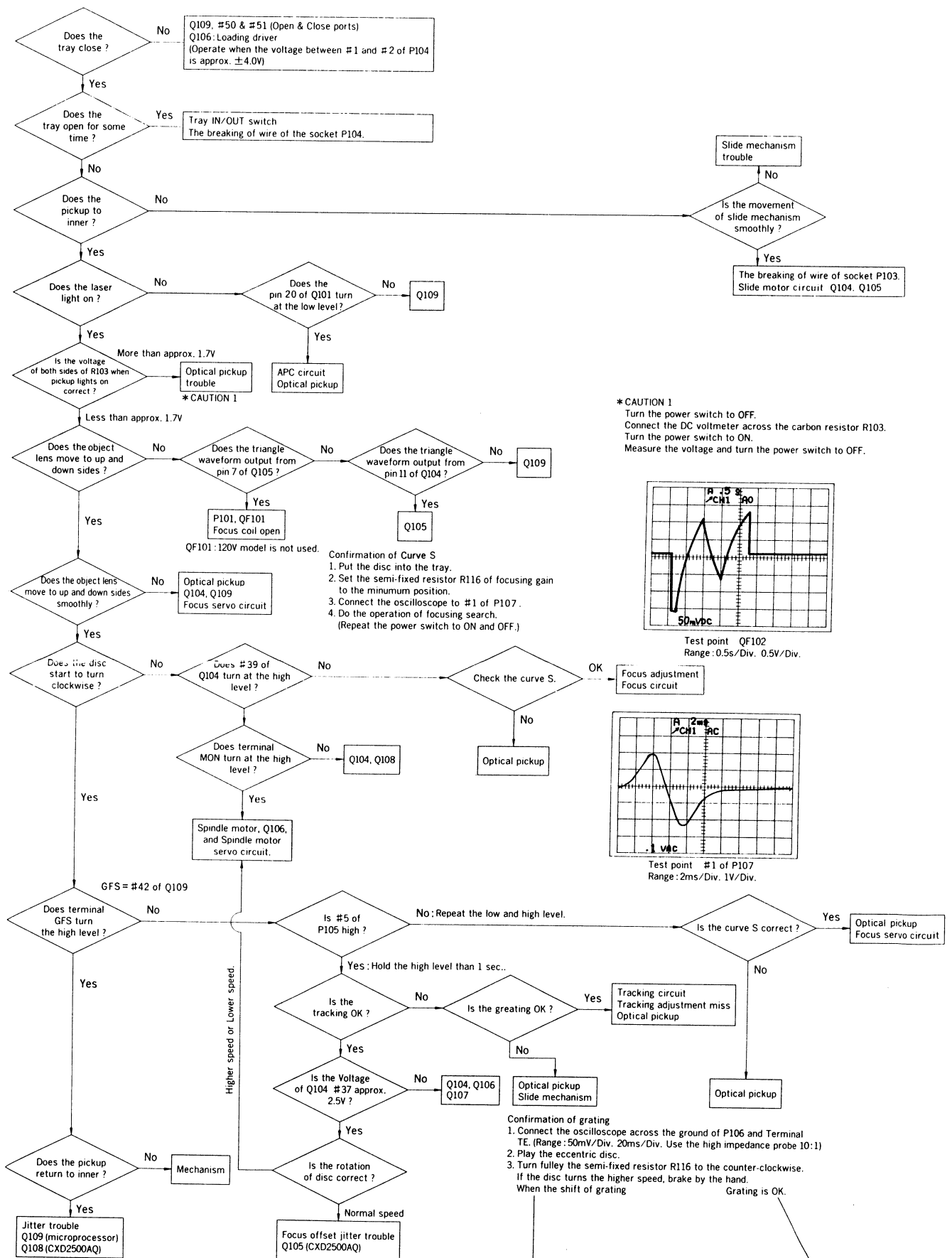| CIRCUIT NO.	PART NO.	DESCRIPTION
	2001191615	NSAS-16P0295,Socket

NOTE: ●:DX-6920 only
◎:DX-6930 only

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.
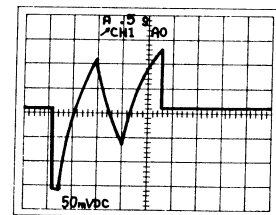
BLOCK DIAGRAM

✱ : DX-6930 ONLY

TROUBLESHOOTING GUIDE

Does the tray close ? — No → Q109, #50 & #51 (Open & Close ports)
Q106: Loading driver
(Operate when the voltage between #1 and #2 of P104 is approx. ±4.0V)

↓ Yes

Does the tray open for some time ? — Yes → Tray IN/OUT switch
The breaking of wire of the socket P104.

↓ No

Does the pickup to inner ? — No → .... → Is the movement of slide mechanism smoothly ? — No → Slide mechanism trouble
↓ Yes → The breaking of wire of socket P103.
Slide motor circuit Q104. Q105

↓ Yes

Does the laser light on ? — No → Does the pin 20 of Q101 turn at the low level ? — No → Q109
↓ Yes → APC circuit / Optical pickup

↓ Yes

Is the voltage of both sides of R103 when pickup lights on correct ? — More than approx. 1.7V → Optical pickup trouble *CAUTION 1

↓ Less than approx. 1.7V

Does the object lens move to up and down sides ? — No → Does the triangle waveform output from pin 7 of Q105 ? — No → Does the triangle waveform output from pin 11 of Q104 ? — No → Q109
↓ Yes → P101, QF101 Focus coil open   ↓ Yes → Q105
QF101 : 120V model is not used.

↓ Yes

Does the object lens move to up and down sides smoothly ? — No → Optical pickup Q104, Q109 Focus servo circuit

↓ Yes

Does the disc start to turn clockwise ? — No → Does #39 of Q104 turn at the high level ? — No → ..... → Check the curve S. — OK → Focus adjustment / Focus circuit
↓ (No) → Does terminal MON turn at the high level ? — No → Q104, Q108
↓ Yes → Spindle motor, Q106, and Spindle motor servo circuit.   (No) → Optical pickup

↓ Yes

GFS = #42 of Q109

Does terminal GFS turn the high level ? — No → Is #5 of P105 high ? — No : Repeat the low and high level. → Is the curve S correct ? — Yes → Optical pickup / Focus servo circuit
↓ Yes → Hold the high level than 1 sec..   ↓ No → Optical pickup
Is the tracking OK ? — No → Is the greating OK ? — Yes → Tracking circuit / Tracking adjustment miss / Optical pickup
↓ Yes   ↓ No → Optical pickup / Slide mechanism
Is the Voltage of Q104 #37 approx. 2.5V ? — No → Q104, Q106 Q107
↓ Yes
Is the rotation of disc correct ? — Normal speed → Focus offset jitter trouble Q105 (CXD2500AQ)

Higher speed or Lower speed.

↓ Yes

Does the pickup return to inner ? — No → Mechanism
↓ Yes
Jitter trouble
Q109 (microprocessor)
Q108 (CXD2500AQ)

Confirmation of Curve S
1. Put the disc into the tray.
2. Set the semi-fixed resistor R116 of focusing gain to the minumum position.
3. Connect the oscilloscope to #1 of P107.
4. Do the operation of focusing search.
   (Repeat the power switch to ON and OFF.)

*CAUTION 1
Turn the power switch to OFF.
Connect the DC voltmeter across the carbon resistor R103.
Turn the power switch to ON.
Measure the voltage and turn the power switch to OFF.

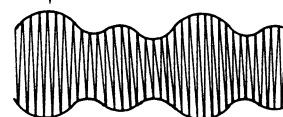Test point   QF102
Range : 0.5s/Div. 0.5V/Div.
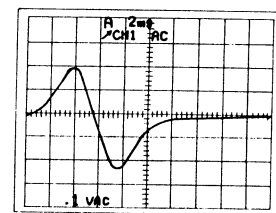
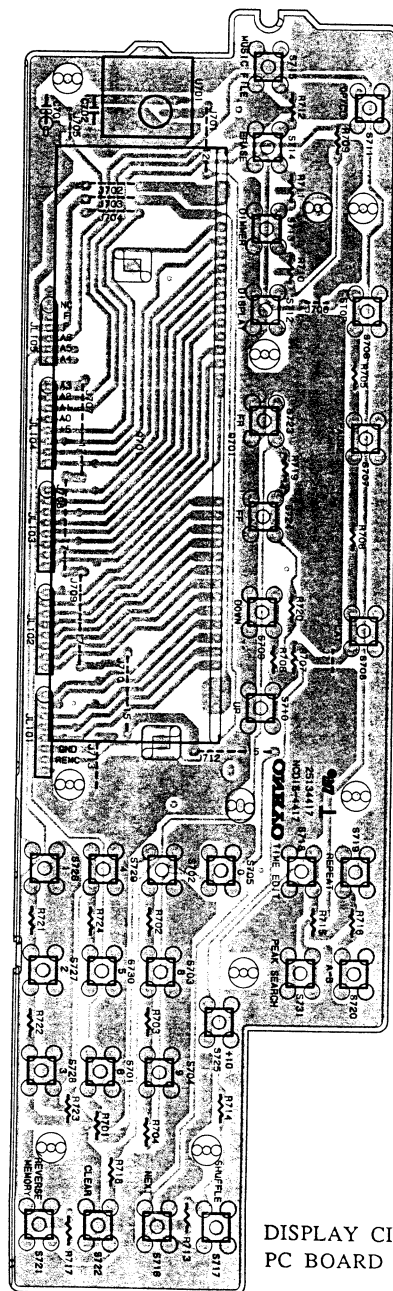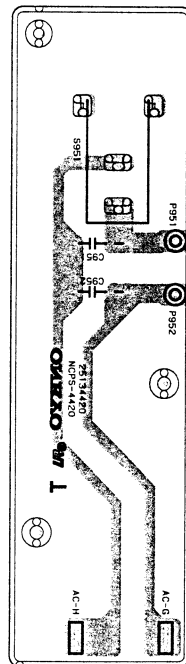Test point   #1 of P107
Range : 2ms/Div. 1V/Div.

Confirmation of grating
1. Connect the oscilloscope across the ground of P106 and Terminal TE. (Range : 50mV/Div. 20ms/Div. Use the high impedance probe 10 : 1)
2. Play the eccentric disc.
3. Turn fulley the semi-fixed resistor R116 to the counter-clockwise.
   If the disc turns the higher speed, brake by the hand.
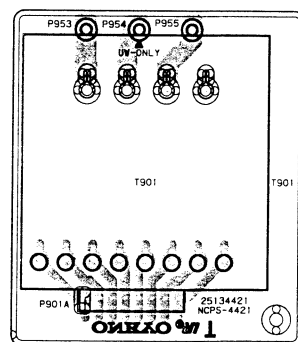   When the shift of grating   Grating is OK.

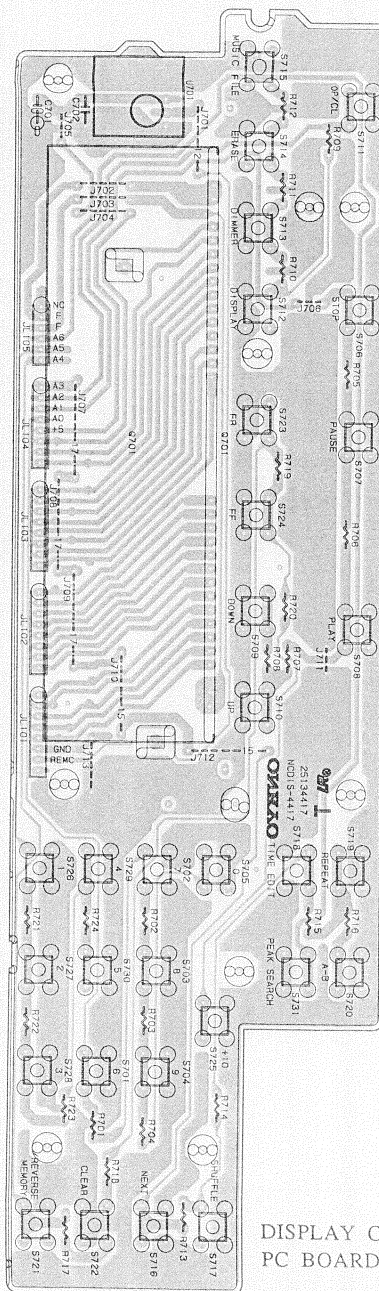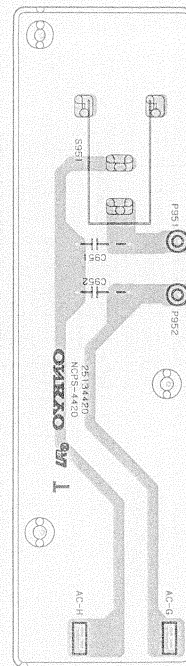# PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

POWER SUPPLY CIRCUIT PC BOARD

TERMINAL PC BOARD

DISPLAY CIRCUIT
PC BOARD

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

POWER SUPPLY CIRCUIT PC BOARD

TERMINAL PC BOARD

DISPLAY CIRCUIT
PC BOARD